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Recently upon opening my mosses for examination this moss proves to be *Paludella squarrosa* (L.) Brid. of which I am unable to find any previous records for New England. I shall certainly get a larger quantity on my next visit.

Specimens have been submitted to Mr. Chamberlain who verifies the determination, and to Mr. Collins who sends the following record of its collection:

"I find I have no record of any station for *Paludella* in New England. The record that I had in mind proves to be a New York record. Other records are Greenland, Hudson's Bay, Mt. Albert and Grand River (Gaspé), Anticosta, Rocky Mts. of Canada, British Columbia, Saskatchewan, Alaska, and near Montreal, Canada."
Auburndale, Mass.

"THE LICHEN FLORA OF THE SANTA CRUZ PENINSULA." A REVIEW.

LINCOLN WARE RIDDLE.

The appearance, within a period of less than a month, of two extensive and important papers on lichens is a sufficiently remarkable experience in North American Lichenology to call for special notice. Prof. Bruce Fink's "Lichens of Minnesota," which appeared June 1, 1910, has already been reviewed in these pages.¹ And it now becomes the reviewer's privilege to call to the attention of the readers of THE BRYOLOGIST the work of Dr. A. C. Herre on "The Lichen Flora of the Santa Cruz Peninsula, California," published May 15, 1910.² It is of interest to compare these two papers in a general way. Each represents the intensive study of a restricted region: each author has published various preliminary studies,³ and in each case the present papers come as the culmination of prolonged work. Minnesota being the larger field offers 439 species and varieties, but the richness of the Californian flora results in the description of 309 species and varieties from the smaller area.

Dr. Herre's paper should be of special interest to American students as being the first important paper to embody consistently Dr. Zahlbruckner's ideas of classification and nomenclature as presented in his treatment of the lichens in Engler and Prantl.⁴ After the long established authority of Tuckerman's "Synopsis of the North American Lichens" to which we are accustomed this can not but seem radical. Yet it is undoubtedly the nearest approach that we yet have to a classification upon which the majority of

1. BRYOLOGIST 13: Nov. 1910.

2. Herre, A. W. C. T. The Lichen Flora of the Santa Cruz Peninsula, California. Proc. Washington Acad. Sci. 12: 27-269. 1910.

3. Herre, A. W. C. T. The Folioseous and Fruticose Lichens of the Santa Cruz Peninsula, California. Proc. Wash. Acad. Sci. 7: 325-396. 1906. Lichen Distribution in the Santa Cruz Peninsula, California. Botanical Gazette 43: 267-273. 1907.

4. Engler and Prantl Die Natürlichen Pflanzenfamilien. Teil I. Abteilung No. 1.

lichenologists can in general agree. It is, therefore, of value to have the system applied concretely to the lichen flora in an American locality.

A subsequent paper⁵ by Dr. Herre points out the peculiarities of the California lichen flora, with which the earlier publications of Dr. H. E. Hasse have already made us somewhat acquainted. Yet with due allowance for these peculiarities, it is doubtful if Dr. Herre has not been somewhat too free in his proposal of new species, the present paper and those preliminary to it including 14 new species, named by Dr. Herre himself, with 3 more named by Dr. Zahlbruckner. It seems probable that some of these will share the fate which has already overtaken the *Gyrophora diabolica* Zahlbr. of the earlier paper⁶ (1906), which proved to be *G. polyrrhiza* (L.) Koebr., well-known in Europe, but new to this country. Another case noticed in reviewing the paper is that of *Parmelia olivacea* var. *polyspora* Herre (p. 199) which is evidently *P. multispora* Schneider,⁷ discussed at different times in THE BRYOLOGIST by Mr. G. K. Merrill⁸ and Dr. H. E. Hasse,⁹ who point out the wide distribution of the plant along the Pacific Coast. One new genus, *Zahlbrucknera*, with the species, *calcareae*, is also described.

The paper is furnished with keys, a procedure in lichen publications which can not be too strongly encouraged. The generic keys are based on those in Engler and Prantl (l. c.). The value of the specific keys, based on Dr. Herre's own work, can be judged only after extended trial. In the key to *Ramalina* (p. 215, bottom of page), there is evidently a mistake in arrangement, which is especially to be regretted as it involves *R. Menziesii* Tuck. upon the diagnostic characters of which eastern lichenologists would be glad of more light. In the key to *Pertusaria* (p. 165), there is introduced a new diagnostic character for *P. amara* (Ach.) Nyl. First we had the morphological study of lichens, then we had to apply chemical tests, and now, it appears, that we must taste our lichens! for *P. amara* is said to be "bitter to the taste, like quinine." This may be an excellent character, but would it not be rather inconvenient to use in the examination of a large series of specimens?

In addition to the assistance rendered by the keys, each species is accompanied by synonymy sufficient to place it, together with a description concise enough to be almost of diagnostic value.

To the descriptions Dr. Herre has added the chemical tests, which we are glad to have, apart from any opinions as to their value.

In spite of some points open to criticism, Dr. Herre has produced a valuable and stimulating work, and deserves the gratitude of lichenologists in contributing to the knowledge of one of the most interesting parts of our country.

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5. Herre, A. W. C. T. Suggestions as to the Origin of California's Lichen Flora. Plant World 13: 215-220. Sept. 1910.

6. Proc. Wash. Acad. Sci. 7: 366. 1906.

7. Schneider, A. Guide to the Study of Lichens, p. 154. 1898.

8. BRYOLOGIST 12: 73. 1909.

9. BRYOLOGIST 13: 60. 1910.